

PATENT SPECIFICATION

201,164

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COMPLETE SPECIFICATION.

Improvements in or relating to Resilient Couplings for Power Transmission.

I, GIUSTINO CATTANEO, of 79, Via Monte Rosa, Milan, Italy, an Italian subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a resilient coupling for power transmission suitable for damping the vibrations between a driving member and a driven member coaxial thereto. The coupling is particularly applicable to internal combustion engines.

The essential feature of the invention consists in making the driving member solid with a toothed ring which acts on pawls balanced by opposed springs, these pawls—through the intermediary of a ring on which they are pivotally carried—being adapted to transmit oscillations to a further set of similar spring-balanced pawls that are pivotally mounted on the same pivots and engage with the teeth of a further toothed rim solid with the driven member.

The accompanying drawing illustrates by way of example one method of carrying out the invention.

Figure 1 is a longitudinal section through the apparatus.

Figure 2 is a cross-section on the line A—B in Figure 1.

Figure 3 is a partial longitudinal section on a larger scale on the line C—D in Figure 4.

Figure 4 is a partial cross section on the line E—F in Figure 3.

On a driving shaft *a*, a sleeve *b* fitted at one end with a toothed rim *c* is rigidly fixed by a key *h*.

On the sleeve *b* is fitted a further sleeve *d* which is on a bush *e* and can revolve freely on the sleeve *b* but cannot slide axially, being prevented therefrom by

the toothed rim *c* at one end and by the driving shaft *a* at the other end.

The sleeve *d* carries at one end a power transmission gear wheel *f*. At its other end it is fitted with a toothed rim *g* which is identical with the toothed rim *c* and similarly arranged.

A ring *i* of double T-section peripherally surrounds both rims *c* and *g* and is laterally held between two discs *l* and *l'* that are secured together by bolts *m*. On these bolts are pivotally mounted two sets of pawls, namely pawls *n* engaging the teeth of rim *c* and pawls *n'* engaging the teeth of rim *g*.

The pawl ends engaging with the teeth are so shaped as to allow of the pawls swinging about their pivots *m*, as shown in dotted lines in Figure 4. The result is that a certain angular displacement is permitted between the sleeve *b*, ring *i* and sleeve *d*. Accordingly the driven sleeve *d* and the driving sleeve *b* can be displaced relatively to one another through a certain angle, viz. the angle corresponding to the amount by which the pawls are permitted to swing about their pivots *m*.

The pawls *n* (and *n'*) opposite to the end engaging with the teeth of rims *c* and *g* respectively, are provided with an extension or tail portion.

Against each side face of these tail portions one end of a spring *o* or *o'* bears, and the other end abuts against diaphragms *p* solidly secured to the ring *i*. The duty of the springs *o*, *o'* is to counteract resiliently the swinging of the pawls *n* (and *n'*) on their pivots *m* in both directions.

The sleeve *b*, through the toothed rim *c*, transmits its rotary motion to the pawls *n*. Due to the resistance offered by the spring *o* to the swinging of the pawls *n* about the pivots *m*, the pawls *n* resiliently

drive the ring *i* along with the sleeve *b*. In its turn the ring *i*, by the resilient drive of the other set of pawls *n*¹, carries along with it the sleeve *d*.

5 Therefore it will be seen that the drive between the shaft *a* and the driven gear wheel *f* takes place through two sets of resilient members, whereby the vibrations of the driving shaft are completely taken
10 up.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I
15 claim is:—

1. A resilient coupling for power transmission particularly suitable for damping the vibrations between a driving member and a driven member coaxial
20 thereto, characterised by the fact that the

driving member is solid with a toothed ring which acts on pawls balanced by opposed springs, these pawls—through the intermediary of a ring on which they are pivotally carried—being adapted to
25 transmit oscillations to a further set of similar spring-balanced pawls that are pivotally mounted on the same pivots and engage with the teeth of a further toothed rim solid with the driven member.

2. The resilient coupling substantially as described or substantially as illustrated in the accompanying drawing.

Dated this 13th day of July, 1923.

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FIG. 2

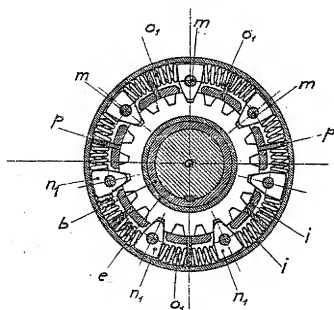


FIG. 4

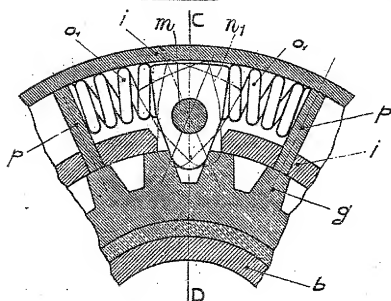


FIG. 1

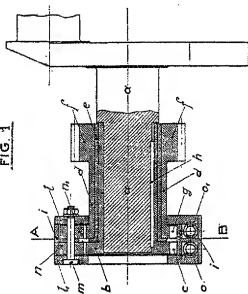


FIG. 2

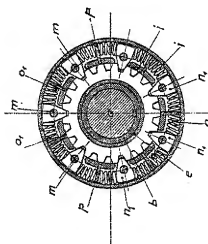


FIG. 3

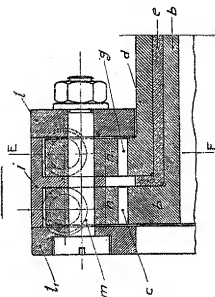
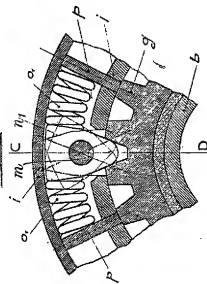


FIG. 4



[This Drawing is a reproduction of the Original on a reduced scale]

